

WHAT IS CLAIMED IS:

1. A medical device, comprising:
a catheter comprising an expandable balloon;
an expandable endoprosthesis positioned on the balloon, the endoprosthesis having a first end and a second end; and
an expandable sleeve extending over an end of the endoprosthesis and a portion of the balloon adjacent to the end of the endoprosthesis,
wherein the sleeve is configured to separate into a plurality of portions.
2. The device of claim 1, wherein the endoprosthesis comprises a stent.
3. The device of claim 1, wherein the sleeve extends over the first and second ends of the endoprosthesis.
4. The device of claim 1, wherein the endoprosthesis has an outer surface, and the sleeve extends over the outer surface of the endoprosthesis.
5. The device of claim 1, wherein the endoprosthesis has an outer surface, and the sleeve covers the outer surface of the endoprosthesis.
6. The device of claim 1, wherein the balloon comprises a tapered portion, and the sleeve is attached to the tapered portion.
7. The device of claim 1, wherein the balloon comprises a sleeve portion, and the sleeve is attached to the sleeve portion.
8. The device of claim 1, wherein the sleeve is attached to the catheter.
9. The device of claim 1, wherein the sleeve is a tubular member.

10. The device of claim 1, wherein the sleeve is configured to separate into at least three portions.

11. The device of claim 1, wherein the sleeve comprises a polymer.

12. The device of claim 11, wherein the polymer is a material selected from a group consisting of a silicone, a polyurethane, a latex, and a polyether amide.

13. The device of claim 1, wherein the sleeve comprises a therapeutic agent.

14. The device of claim 1, wherein the sleeve has a surface defining an opening.

15. The device of claim 1, wherein the sleeve is a tubular member having a lateral opening.

16. The device of claim 1, wherein the sleeve is configured to separate at a predetermined pressure.

17. The device of claim 1, wherein the sleeve is configured to separate at a predetermined level of expansion of the balloon.

18. The device of claim 1, wherein the sleeve includes portions configured to move away from the endoprosthesis after the sleeve separates.

19. The device of claim 1, wherein the endoprosthesis is embedded in the sleeve.

20. A medical device, comprising:
a catheter comprising an expandable balloon;
a stent positioned over the balloon, the stent having an outer surface, a first end, and a second end; and

a sleeve extending over the outer surface and the first and second ends of the stent, the sleeve further extending over portions of the balloon adjacent to the ends of the stent,

wherein the sleeve comprises a separation portion.

21. The device of claim 20, wherein the sleeve comprises a polymer.

22. The device of claim 20, wherein the sleeve comprises a therapeutic agent.

23. The device of claim 20, wherein the balloon has a tapered portion, and the sleeve is attached to the tapered portion.

24. The device of claim 20, wherein the balloon has a sleeve portion, and the sleeve is attached to the sleeve portion.

25. The device of claim 20, wherein the sleeve is attached to the catheter.

26. The device of claim 20, wherein the separation portion is perforated.

27. The device of claim 20, wherein the separation portion has a thickness less than a thickness of the balloon.

28. The device of claim 20, wherein the separation portion is over the stent.

29. The device of claim 20, wherein the separation portion is over the balloon.

30. The device of claim 20, comprising a plurality of separation portions.

31. The device of claim 30, wherein the separation portions are asymmetrically positioned along the catheter.

32. The device of claim 30, wherein the separation portions are configured to separate under different conditions.
33. The device of claim 20, wherein the sleeve is a tubular member.
34. The device of claim 20, wherein the sleeve covers the outer surface of the stent.
35. A method, comprising:
positioning a medical device comprising
a catheter comprising an expandable balloon,
an expandable endoprosthesis positioned on the balloon, the
endoprosthesis having a first end and a second end, and
an expandable sleeve extending over an end of the endoprosthesis and a
portion of the balloon adjacent to the end of the endoprosthesis; and
separating the sleeve into a plurality of portions.
36. The method of claim 35, wherein separating the sleeve comprises expanding the sleeve.
37. The method of claim 35, comprising separating the sleeve sequentially.
38. The method of claim 35, comprising separating the sleeve into three portions substantially simultaneously.
39. The method of claim 35, further comprising separating the endoprosthesis and the sleeve from the catheter.
40. The method of claim 35, wherein the sleeve comprises an outer surface defining an opening, the method further comprising aligning the opening with an opening of a body lumen.

41. A medical device, comprising:
a catheter;
an expandable sleeve attached to the catheter, the sleeve configured to separate
into a plurality of portions; and
an expandable endoprosthesis between the catheter and the sleeve.
42. The device of claim 41, wherein the catheter comprises an expandable balloon,
and the sleeve and the endoprosthesis are carried by the balloon.
43. The device of claim 41, wherein the endoprosthesis is self-expandable.
44. The device of claim 41, wherein the sleeve covers the endoprosthesis.
45. The device of claim 41, wherein the endoprosthesis comprises ends, and the
sleeve covers the ends of the endoprosthesis.
46. The device of claim 41, further comprising a sheath over the sleeve.
47. The device of claim 41, wherein the sleeve is a tubular member.